IMPLEMENTATION AND EVALUATION OF DIGITAL E-LEARNING WITH IMPROVED TEXT SEARCH
1,2UG Scholar, Dept. of IT, Sathyabama University, Chennai.
3Associate Professor, Faculty of Computing, Department of Information Technology, Sathyabama University, Chennai.
Email: kevinraja2195@gmail.com

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Abstract
Nowadays the world is in the times that the information grows in an explosive type and updates at a high speed, so a demand to the reform of education has appeared. In the opinion of informatization society we must join in and promotes the reform of education positively. A new era of internet user can learn education through internet. It has different problems such as searchability and categorized information. We present a new searching algorithm for improving e-learning for all the users in efficient way. At the same time many advanced multimedia technologies can make the courses more expressive and attractive which will increase the studying effect. In view of these situations we design and develop a Web-Based Network Teaching Platform. Extraction of semantic data involved for making the tool easily.

Introduction
The fastest-growing areas of educational development in the world are online and distance learning. In the United States, 6.7 million students were enrolled in at least one online course in the Fall Semester of 2011. This means that more than 32% of all higher education students were taking at least one online course. Research supports the claim that e-lectures i.e. video recordings of lectures, play a key role in online education.

Due to lecture recording systems (like Tele-TASK, Opencaast Matterhorn, Camtasia Studio or Lecturnity) becoming easier and faster to use, the number of educational videos grows rapidly. Even a small computer science institute may have thousands of lecture videos or video snippets available. The enormous amount of resources and learning content combined with the limited time to deal with all this information presents one of the main challenges for learners today. Quickly grasping the content of a lecture video is a major issue, as well as searching through the whole video...
for specific or even unspecific information. This is the case because videos are multimedia content, it is thus not a trivial undertaking to search or index them. Administrative metadata is often a solution to the searching and filtering issue from the institutions providing the content. However, this solution is time and cost intensive.

The use of video lectures in distance learning involves the two major problems of searchability and active user participation. Quickly grasping the content of a lecture video is a major issue, as well as searching through the whole video for specific or even unspecific information. This is the case because videos are multimedia content; it is thus not a trivial undertaking to search or index them.

The project focuses on making e learning process active. Users can add their feedbacks on real time basis. Each feedback consists of a user name and associated time stamp at which the feedback was added. Based on the feedback, the e lecture can be modified further. With searchability added in lectures, a user can go to a particular portion of the video directly. A user is also given a feature of adding bookmarks or notations for easy identification of videos of his choice.

Once a user adds a notation to his video, next time the video can be retrieved easily using the notation only. This makes the retrieval process easy. A user doesn’t have to search the video again and again, the only thing he has to do is to remember his notation. The notations are saved in a log-file. Each entry in the log-file corresponds to a video in the video database. Thus the lecture searching becomes easy and comfortable.

Related Work

In this concept e-lecturing has become more and more popular. The amount of lecture video data on the World Wide Web (WWW) is growing rapidly[7]. Therefore, a more efficient method for video retrieval in WWW or within large lecture video archives is urgently needed[7]. This paper presents an approach for automated video indexing and video search in large lecture video archives[7]. First of all, we apply automatic video segmentation and key-frame detection to offer a visual guideline for the video content navigation[7].

Subsequently, they extract textual metadata by applying video Optical Character Recognition (OCR) technology on key-frames and by performing Automatic Speech Recognition (ASR) on lecture audio tracks[7]. The OCR and ASR transcript as well as detected slide text line types are adopted for keyword extraction, by which both video- and segment-level keywords are extracted respectively[7].

In this paper we would like to tackle the problem of user participation, respectively the lack of it, in e-learning platforms, especially in tele-teaching environments[9]. As the basis we use the idea of a culture of participation to
analyze existing systems and suggest enhancements for them[9]. Our aim is to help improve the active engagement and collaboration of learners with the learning material and with fellow students[9].

First, they conduct a literature review of collaboration and participation in e-learning[9]. Afterwards, they analyze an existing tele-teaching web portal for the implementation of the culture of participation[9]. Design principles and requirements extracted during literature review are used for the analysis[9]. Finally they suggest different improvements to really create a culture of participation in tele-teaching[9]. As an example feature we use collaborative digital video annotation.

“Internetworking with TCP/IP” is a Massive Open Online Course, held in German at open HPI end of 2012 that attracted a large audience that has not been in contact with higher education before[10]. The course followed the MOOC model based on a well-defined sequence of learning content, mainly video lectures and interactive self-tests, and with heavy reliance on social collaboration features[10].

1) How can a MOOC accommodate different learning styles?[10]

2) What recommendations for the design and organization of a MOOC can be concluded from the responses? [10]

They finally give an outlook on challenges for the further development of open HPI[10]. Those challenges are based on didactical and technical affordances for a better support of the different learning styles[10]. They propose an evolution of the MOOC that bridges the gap to the MOOC model by developing tools that allow users to create diverging paths through the learning material, involve the user personally in the problem domain with (group) hands-on exercises and reward user contributions by means of gamification[10].

In order to assess the relationships between online course design, participants' interactions, and learning, a first step is to examine closely and describe the nature of online class participants' interactions within synchronous and asynchronous conferences [8].

In this article, address the role of interactive writing as an integral element in the conceptual development that takes place in such online courses[8]. Argue that the interactive textual environment of asynchronous online conferences is particularly facilitative of both social and cognitive construction of meaning because the nature of online interactive writing itself bootstraps the construction of meaning[8].

Problem Definition

The current project focuses on eliminating the problems associated with the current e lecture delivery, i.e., search ability and active user participation.
While accessing the video lectures, a user can select a particular video of his own choice and save it using a bookmark. Next time when the user looks for the videos again, he doesn’t have to search throughout the database again, the only thing he has to do is to search his notation, associated with that particular video he has already viewed. The notations associated with the videos will be saved using a log file. Each entry in the log file will be referring to a particular video only.

**Existing System**

The existing system is based on simple lecture viewing and sitting back without any active participation. Users can discuss with schoolmates and teachers by short messages. Users can also exchange information through the forum. The searching option within the video is not available. Users can’t add bookmarks or any notations within the video. There is no specific method to retrieve a favorite video which has been viewed once.

**Disadvantages of existing system**

- Searching will be difficult.
- Making notes are difficult.
- Poor Quality of Service.
- Add of bookmarks within the video isn’t available.
- Quickly grasping the contents isn’t feasible.

**Proposed System**

In this model, E-learning is combined with E-Commerce for satisfying user requirements. Students can download the data at any where, as per his requirement. Also students can make notes while taking E-Learning process. Students can go to a specific portion of video easily. Notations can be added to the video. For each video, a notation is stored in a log file. Notations make video retrieval from database easy and efficient based on the notes he can easily search the data what he seen before. The e-learning itself serves as an evaluation mechanism since the student maintains a diary of his/her achievements as well as a personal reflection document, covering her/his work expectations, knowledge gained, project phases completed, and areas for improvement.

**Advantages of proposed system**

- The use of e-learning facilitates content management, allows students to keep records and connect ideas, and facilitates student collaboration.
This e-learning method was appreciated by students, who got weekly feedback about the assignments and had the opportunity to rework their assignments before final submission, which they saw as a great opportunity for self-improvement.

- This project reports a proposal for improving teaching/learning and evaluation E-learning.
- Searching of video content is enhanced.
- Bookmarks feature is added.
- Annotations feature is added.

**System Architecture**

The main component of architecture is E Learning. The component interacts with both students and the staff. The E learning component is implemented using video lectures. The E learning component is interactive, every user can add feedback, the feedback is saved using the user name and the time stamp.

**Modules**

- User Profile
- Search Query
- Notation Marker
- Domain Creation
- Transaction Process
Product Shipping

User Profile

E-Learning & E-Commerce is the learning system for the students throughout the world. It is term of business in commercial aspects. It is good for buying and selling the product. Users can access the system through only internet. Every user has his/her unique authentication ID for accessing the system. Based on the User system will validate the information and it will provide authority for accessing.

Search Query

Users can collect their study materials from E-Learning Process. Whenever user gives the query, system will search the data from Dataset. Finally system will display User’s data.

Notation Marker

In case users want make any notation on the data, user can easily add the notation. That notation will be stored in log file of the data. For increasing ease of access, user can search the data from the notation whatever the user marked in the data. System will mine the data form log file and revert the corresponding file to the user.

Domain creation

Domain creation is the process; It validates the education contents and storing the files in appropriate domain model.

In this phase, system will update the education materials in domain based model.

Transaction Process

In this module, system will include E-Commerce process. User can buy the product from the selling authority. User can buy the product through online with any banking application.

Product Shipping

Finally, if the transaction has succeeded user can download the data. Every transaction system will provide security for secure transaction Process.

Algorithm

In this paper, we are using an algorithm called “NOTATION BASED SEARCHING ALGORITHM”.

Annotation process

S = set of users in the group;
A= Annotation maintaining record set
s1->a1,s2->a2,s3->a3........Sn->an;
{s1, s2, s3 ...... sn} -> An;

All the users can view and comment the annotations available on the recorded set.

Annotation A contains;
A -> {T, C, TS, U}

T = Text;
C = If anything attached.

TS = Time Stamp for checking when it wrote,

U = User Details who wrote the annotation.

For adding into the group

A -> {T, C, TS, U, G}

G denotes group users.

**Searching query based on notation**

n -> Notation

D -> Data Set

P -> Log file of the Data

n1 -> p1; n2 -> p2; n3 -> p3; ................................................. n -> Pn.

**Performance Analysis**

The plotted graphs explain about the comparison between notation search and normal search based on books retrieved and time taken.

In the notation search the books retrieved is more accurate to the users search based on the query they give than in normal search.

![Graph for comparing normal and notation search based on books retrieved](image_url)
By the above graph, time can also be reduced while searching a particular book on retrieving only the book based on notation. This is explained in below graph Fig:3.4.

**Graph for comparing normal and notation search based on time**

**Conclusion**

In this project, we have enhanced the older searching technique in e-learning. An user logs in to the website and searches for books. In the existing system if the user searches for a particular book, multiple number of books will be shown based on the query we enter. To overcome this problem “NOTATION SEARCH” is implemented. In this type of search the user can add notation to the book which they want to refer. The next time if the user wants to access the same book they can search the book by notation which the user itself added. This technique will reduce time and retrieves only the book based on keyword while searching.

The user maintains a login to save all their notations. Only that particular user can access the account and retrieve the books based on keyword. If the user wants to buy the product they need to provide a valid bank information. This whole process in e-learning makes the user to access the data fastly and securely.

**References**


**Corresponding Author:**

**Kevin Raja.F,**

**Email:** kevinraja2195@gmail.com